

L Number	Hits	Search Text	DB	Time stamp
1	260706	polysaccharide cellulose starch pecti\$2 chitin chitosan polyglucosamine hyaluron\$4 chondroitin	USPAT; US-PPGPUB	2003/04/11 11:55
2	326364	oxidati\$4 oxidiz\$4	USPAT; US-PPGPUB	2003/04/11 11:05
3	9855	(polysaccharide cellulose starch pecti\$2 chitin chitosan polyglucosamine hyaluron\$4 chondroitin) same (oxidati\$4 oxidiz\$4)	USPAT; US-PPGPUB	2003/04/11 09:52
4	23046	hypochlorous hypochlorite tempo nitroxyl tetramethylpiperidine	USPAT; US-PPGPUB	2003/04/11 11:06
5	6089	(oxidati\$4 oxidiz\$4) same (hypochlorous hypochlorite tempo nitroxyl tetramethylpiperidine)	USPAT; US-PPGPUB	2003/04/11 09:55
6	810	((polysaccharide cellulose starch pecti\$2 chitin chitosan polyglucosamine hyaluron\$4 chondroitin) same (oxidati\$4 oxidiz\$4)) and ((oxidati\$4 oxidiz\$4) same (hypochlorous hypochlorite tempo nitroxyl tetramethylpiperidine))	USPAT; US-PPGPUB	2003/04/11 09:55
7	494834	alkali merceriz\$6 gelatiniz\$6 wettable wettabil\$6 solubil\$6 soluble	USPAT; US-PPGPUB	2003/04/11 09:56
8	309	(hypochlorous hypochlorite) and (tempo nitroxyl tetramethylpiperidine)	USPAT; US-PPGPUB	2003/04/11 09:57
9	32	((polysaccharide cellulose starch pecti\$2 chitin chitosan polyglucosamine hyaluron\$4 chondroitin) same (oxidati\$4 oxidiz\$4)) and ((hypochlorous hypochlorite) and (tempo nitroxyl tetramethylpiperidine))	USPAT; US-PPGPUB	2003/04/11 09:57
10	1245028	ph mw (mol adj (wt weight)) (molecular weight)	USPAT; US-PPGPUB	2003/04/11 12:00
11	29	(oxidati\$4 oxidiz\$4) and (alkali merceriz\$6 gelatiniz\$6 wettable wettabil\$6 solubil\$6 soluble) and ((polysaccharide cellulose starch pecti\$2 chitin chitosan polyglucosamine hyaluron\$4 chondroitin) same (oxidati\$4 oxidiz\$4)) and ((hypochlorous hypochlorite) and (tempo nitroxyl tetramethylpiperidine)) and (ph mw (mol adj (wt weight)) (molecular weight))	USPAT; US-PPGPUB	2003/04/11 11:04
12	179294	polysaccharide cellulose starch pecti\$2 chitin chitosan polyglucosamine hyaluron\$4 chondroitin	EPO; JPO; DERWENT	2003/04/11 11:05
13	243685	oxidati\$4 oxidiz\$4	EPO; JPO; DERWENT	2003/04/11 11:05
14	3792	(polysaccharide cellulose starch pecti\$2 chitin chitosan polyglucosamine hyaluron\$4 chondroitin ) and (oxidati\$4 oxidiz\$4 )	EPO; JPO; DERWENT	2003/04/11 11:05
15	11840	hypochlorous hypochlorite tempo nitroxyl tetramethylpiperidine	EPO; JPO; DERWENT	2003/04/11 11:06
16	159	((polysaccharide cellulose starch pecti\$2 chitin chitosan polyglucosamine hyaluron\$4 chondroitin ) and (oxidati\$4 oxidiz\$4 )) and (hypochlorous hypochlorite tempo nitroxyl tetramethylpiperidine )	EPO; JPO; DERWENT	2003/04/11 11:07
17	15402	chitin chitosan polyglucosamine hyaluron\$4 chondroitin	USPAT; US-PPGPUB	2003/04/11 11:55
18	590	(oxidati\$4 oxidiz\$4) same (chitin chitosan polyglucosamine hyaluron\$4 chondroitin)	USPAT; US-PPGPUB	2003/04/11 11:55
19	495494	absorb\$6 superabsorb\$6	USPAT; US-PPGPUB	2003/04/11 11:57
20	341	((oxidati\$4 oxidiz\$4) same (chitin chitosan polyglucosamine hyaluron\$4 chondroitin)) and (absorb\$6 superabsorb\$6)	USPAT; US-PPGPUB	2003/04/11 11:57
21	41	((oxidati\$4 oxidiz\$4) same (chitin chitosan polyglucosamine hyaluron\$4 chondroitin)) same (absorb\$6 superabsorb\$6)	USPAT; US-PPGPUB	2003/04/11 11:59
22	246487	carboxyl\$6	USPAT; US-PPGPUB	2003/04/11 12:00

23	366	((oxidati\$4 oxidiz\$4) same (chitin chitosan polyglucosamine hyaluron\$4 chondroitin)) and carboxyl\$6 mw (mol adj (wt weight)) (molecular adj weight)	USPAT; US-PGPUB	2003/04/11 12:00
24	300918	((oxidati\$4 oxidiz\$4) same (chitin chitosan polyglucosamine hyaluron\$4 chondroitin)) and carboxyl\$6 ) and ( mw (mol adj (wt weight)) (molecular adj weight))	USPAT; US-PGPUB	2003/04/11 12:01
25	281	((oxidati\$4 oxidiz\$4) same (chitin chitosan polyglucosamine hyaluron\$4 chondroitin)) and carboxyl\$6 ) and ( mw (mol adj (wt weight)) (molecular adj weight))	USPAT; US-PGPUB	2003/04/11 12:01
26	281	(oxidati\$4 oxidiz\$4) and (chitin chitosan polyglucosamine hyaluron\$4 chondroitin) and (((oxidati\$4 oxidiz\$4) same (chitin chitosan polyglucosamine hyaluron\$4 chondroitin)) and carboxyl\$6 ) and ( mw (mol adj (wt weight)) (molecular adj weight)))	USPAT; US-PGPUB	2003/04/11 12:02

L5 ANSWER 1 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2003:58309 CAPLUS  
 DOCUMENT NUMBER: 138:108525  
 TITLE: Cationic cellulosic fibers for paper making  
 INVENTOR(S): Van Brussel-Verraest, Dorine Lisa; Besemer, Arie  
 Cornelis; Thiewes, Harm Jan; Verwilligen,  
 Anne-Mieke Yvonne Wilhelmina  
 PATENT ASSIGNEE(S): SCA Hygiene Products Zeist B.V., Neth.; SCA Hygiene  
 Products AB  
 SOURCE: PCT Int. Appl., 16 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003006739	A1	20030123	WO 2002-NL458	20020711
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003024662	A1	20030206	US 2002-192691	20020711
US 2003026828	A1	20030206	US 2002-192715	20020711
PRIORITY APPLN. INFO.:				
EP 2001-202667 A 20010711				
EP 2001-205070 A 20011221				
US 2001-304111P P 20010711				
US 2001-341856P P 20011221				

AB A cationic cellulosic fiber contg. between 1 and 30 cationic groups and  
 between 0.1 and 20 aldehyde groups per 100 anhydroglucose units is a  
 suitable basis for producing paper and tissue products without the  
 necessity of using non-biodegradable cationic polymers as wet strength  
 additives. The cationic cellulosic fiber can be obtained by oxidn  
 of the fiber to introduce aldehyde groups, followed by reaction of part  
 of the aldehyde groups with a nitrogen-contg. reagent such as betaine  
 hydrazide hydrochloride. The fiber is advantageously combined with an  
 anionic polymer such as monoaldehyde carboxyl-starch or with anionic  
 cyclodextrin.

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 2 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2003:40129 CAPLUS  
 DOCUMENT NUMBER: 138:95664  
 TITLE: Odor regulation in hygiene products  
 INVENTOR(S): Besemer, Arie Cornelis; Thiewes, Harm Jan  
 PATENT ASSIGNEE(S): SCA Hygiene Products A.B., Swed.  
 SOURCE: Eur. Pat. Appl., 10 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1275404	A1	20030115	EP 2001-202668	20010711
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
WO 2003006078	A2	20030123	WO 2002-NL456	20020711
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

US 2003086974 A1 20030508 US 2002-192690 20020711  
 PRIORITY APPLN. INFO.: EP 2001-202668 A 20010711  
                           US 2001-304408P P 20010712  
 AB Oxidized cyclodextrins contg. an av. of at least 0.5 carboxyl group and/or at least 0.5 functional group selected from aldehyde groups and aldehyde-derived groups per mol. can be used as complexing agents, in particular in odor control for hygiene products. A fragrance component can be incorporated in the oxidized cyclodextrin and released when in use, and, in addn. or alternatively, the oxidized cyclodextrin can absorb undesired odor components during use.  
 REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 3 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2002:811998 CAPLUS  
 DOCUMENT NUMBER: 137:312634  
 TITLE: Process for oxidizing primary hydroxyls in carbohydrates  
 INVENTOR(S): Besemer, Arie; Van Brussel-Verraest, Dorine Lisa; Thiewes, Harm Jan  
 PATENT ASSIGNEE(S): SCA Hygiene Products Zeist B.V., Neth.  
 SOURCE: Eur. Pat. Appl., 6 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1251140	A1	20021023	EP 2001-201454	20010420
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				

PRIORITY APPLN. INFO.: EP 2001-201454 20010420  
 AB Carbohydrates having primary hydroxyl groups, such as starch and cellulose, can be selectively oxidized to carboxylic carbohydrates by oxidn. with mol. oxygen, using a nitrogen oxide such as a nitrite salt, as a catalyst. The reaction is advantageously carried out in a dehydrating solvent such as concd. phosphoric acid. Thus, adding 500 .mu.L 65% nitric acid and 50 mg Na nitrite to a dissoln. of 2.5 g potato starch (15.4 mmol anhydroglucose units) in 50 mL of 85% H<sub>3</sub>PO<sub>4</sub>, exposing the resulting mixt. to O and oxidizing gave oxidized starch with degree of oxidn. (Blumenkrantz method) 40 and 50% after 24 and 96 h, resp.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2002:575029 CAPLUS  
 DOCUMENT NUMBER: 137:124781  
 TITLE: Recovery of nitroxyl radicals from oxidation reactions  
 INVENTOR(S): Thornton, Jeff; Besemer, Arie; Schraven, Bas  
 PATENT ASSIGNEE(S): SCA Hygiene Products AB, Swed.  
 SOURCE: PCT Int. Appl., 22 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002059064	A1	20020801	WO 2001-SE2632	20011129
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG				
SE 2001000210	A	20020727	SE 2001-210	20010126
US 2002151431	A1	20021017	US 2002-53646	20020124

PRIORITY APPLN. INFO.: SE 2001-210 A 20010126  
                           US 2001-264018P P 20010126  
                           WO 2001-SE2632 W 20011129  
 OTHER SOURCE(S): CASREACT 137:124781  
 AB Stable nitroxyl radicals, such as TEMPO and its derivs., used as catalysts

in oxidn. reactions are recovered from oxidn. reactions by hydrophobic interactions with polymers, such as XAD resins, .beta.-cyclodextrin or silica gel. Thus, potato starch in water was treated with 4-acetamido-TEMPO and NaOCl at pH 8.5-9.5. The reaction mixt. was run through a column of silica gel, eluted with water. The 6-carboxy starch was eluted first, followed by the 4-acetamido-TEMPO which could be recycled without loss of activity.

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

LS ANSWER 5 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2002:505677 CAPLUS  
 DOCUMENT NUMBER: 137:247354  
 TITLE: Selective oxidation of carbohydrates by 4-AcNH-TEMPO/peracid systems  
 AUTHOR(S): Bragd, Petter L.; Besemer, Arie C.; Van Bekkum, Herman  
 CORPORATE SOURCE: SCA Hygiene Products, Zeist, 3700 AJ, Neth.  
 SOURCE: Carbohydrate Polymers (2002), 49(4), 397-406  
 CODEN: CAPOD8; ISSN: 0144-8617  
 PUBLISHER: Elsevier Science Ltd.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Starch, amylopectin, inulin, pullulan and Me .alpha.-D-glucopyranoside (Me .alpha.-GlcP) were oxidized by 4-acetamido-2,2,6,6-tetramethylpiperidine-1-oxyl (4-AcNH-TEMPO) as the mediator and peracetic acid or monoperoxyxulfate (Oxone) as the regenerating oxidant. The conversion of primary alc. groups to the corresponding carboxyl groups proceeded with high yield and selectivity, provided that NaBr was added as co-catalyst. The mass mol. distributions of the oxidized polysaccharides indicated that no major depolymn. occurred during oxidn. Oxone appeared to be the most efficient oxidant as the reaction rate was 25 times higher than that of peracetic acid in the oxidn. of Me .alpha.-GlcP. However, oxone produces a larger amt. of waste as byproduct than peracetic acid.

REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

LS ANSWER 6 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2002:462498 CAPLUS  
 DOCUMENT NUMBER: 137:21652  
 TITLE: Production of high molecular weight oxidized cellulose  
 INVENTOR(S): Besemer, Arie Cornelis; Van Brussel-Verraest, Dorine Lisa  
 PATENT ASSIGNEE(S): SCA Hygiene Products Zeist B.V., Neth.  
 SOURCE: Eur. Pat. Appl., 6 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1215217	A1	20020619	EP 2000-204465	20001212
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
WO 2002048196	A1	20020620	WO 2001-NL902	20011212
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002019717	A5	20020624	AU 2002-19717	20011212
PRIORITY APPLN. INFO.: EP 2000-204465 A 20001212				
WO 2001-NL902 W 20011212				

AB The invention pertains to a process for producing oxidized cellulose having a high mol. wt., by pre-treating cellulose in a non-alk. solvent for cellulose so as to lower its crystallinity, and then oxidizing it using an oxidizing system predominantly oxidizing the 6-hydroxymethyl groups or the 2,3-dihydroxyethylene groups to carbaldehyde and/or carboxyl groups. The oxidizing agent is preferably a nitroxyl compd. (TEMPO) or periodate, and the product is useful as a water-absorbent. Thus, a phosphoric acid-regenerated cellulose (2 g) was suspended in water, TEMPO (40 mg) and

NaBr (1 g) were added. Sodium hypochlorite (2 M) was added in 2 mL portions to a total of 12 mL. The pH was kept at 10.5 by addn. of 0.5 M NaOH (total addn. 20.3 mL). The temp. was kept at 4.degree. during the reaction. The total reaction time was 5.5 h. The oxidized product was completely water-sol. Na borohydride (100 mg) was added to reduce aldehyde groups. The product was then isolated by pptn., washed and dried under vacuum at room temp. (yield 2.2 g). The oxidn. degree of the product (based on sodium hydroxide consumption) was 85%. The product consisted of one monodisperse fraction with an av. mol. wt. of 410,000. The oxidized cellulose was dissolved in water (10<sup>8</sup> soln.), the pH was adjusted to 4.5 and butanediol diglycidyl ether was added (10 mol%). The crosslinking was carried out at 50.degree. for 20 h. The obtained gel was dried at 100.degree. in a fluidized bed dryer, reswollen in excess water and dried again. The particles were ground to 100-800 .mu.m particles. The absorption under load in synthetic urine was 11 g/g. Crosslinking with divinyl sulfone resulted in even better performance than with butanediol diglycidyl ether.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 7 OF 33 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:450359 CAPLUS

DOCUMENT NUMBER: 137:21693

TITLE: Process for oxidizing primary alcohols such as that of polysaccharides

INVENTOR(S): Bragd, Petter; Besemer, Arie Cornelis

PATENT ASSIGNEE(S): Swed.

SOURCE: U.S. Pat. Appl. Publ., 3 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002072600	A1	20020613	US 2001-13654	20011213
WO 2002048197	A1	20020620	WO 2001-NL903	20011212
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002019718	A5	20020624	AU 2002-19718	20011212
PRIORITY APPLN. INFO.:			EP 2000-204483	A 20001213
			US 2000-255899P	P 20001218
			WO 2001-NL903	W 20011212

AB Primary hydroxyl groups in a substrate having both primary and secondary hydroxyl groups can be selectively oxidized to carbaldehyde and/or carboxyl groups by contacting the substrate with a cyclic nitroxyl compd. in the presence of a peroxosulfate as a co-oxidant and by carrying out the reaction at a temp. below 30.degree. and at a pH below 9. The process is halogen-free and metal-free and is esp. suitable for oxidizing polysaccharides. Thus, 3.0 g potato starch was gelatinized in 200 mL deionized water at 95.degree. with effective mech. stirring and to which 61 mg 4-acetamido-TEMPO was added and dissolved. The soln. was cooled on ice and the temp. was maintained at .1toreq.10.degree. throughout the reaction. The reaction was initiated by the addn. of 11.38 g Oxone (i.e., 2 mol HSO<sub>5</sub><sup>-</sup>/mol primary alc.), which was added under mech. stirring in small portions throughout the oxidn. to minimize unwanted side reactions. After each addn. of the acidic oxidant, pH was raised to 8.2 and then kept const. by the addn. of 0.5 M NaOH using a pH stat app. After completion of the reaction (8-10 h), the remaining aldehyde intermediates were reduced to the starting alc. using 150 mg of NaBH<sub>4</sub>. After one hour, pH was adjusted to .apprx.6.0 with 0.5 M HCl and the reacted polysaccharides were pptd. in 2 vol. of ethanol, filtered off, and re-dissolved in 50 mL of water. Finally the materials were freeze-dried. The conversion of the primary hydroxys to carboxys was estd. by <sup>13</sup>CNMR to be 60 mol%.

L5 ANSWER 8 OF 33 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:450358 CAPLUS

DOCUMENT NUMBER: 137:34718

TITLE: Recovery of spent periodate in oxidation of starch

INVENTOR(S): Besemer, Arie

PATENT ASSIGNEE(S): Neth.  
 SOURCE: U.S. Pat. Appl. Publ., 4 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002072599	A1	20020613	US 2001-13449	20011213
WO 2002048029	A1	20020620	WO 2001-NL904	20011212
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2002019719	A5	20020624	AU 2002-19719	20011212
PRIORITY APPLN. INFO.: EP 2000-204482 A 20001213 US 2000-255898P P 20001218 WO 2001-NL904 W 20011212				

AB Spent periodate, used in the oxidn. of starch, was regenerated and recovered by reacting the periodate with at least an equimolar amt. of peroxosulfate. Thus, a periodate soln. was used to oxidize potato starch to dialdehyde starch and treated with Oxone to give periodate suitable for further oxidn. of starch.

L5 ANSWER 9 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2002:450357 CAPLUS  
 DOCUMENT NUMBER: 137:21651  
 TITLE: Production of high molecular weight oxidized cellulose  
 INVENTOR(S): Besemer, Arie Cornelis; Van Brussel-Verraest, Dorine Lisa  
 PATENT ASSIGNEE(S): Neth.  
 SOURCE: U.S. Pat. Appl. Publ., 4 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002072598	A1	20020613	US 2001-11976	20011211
US 2000-254587P P 20001212				
PRIORITY APPLN. INFO.: US 2000-254587P P 20001212				
AB The invention pertains to a process for producing oxidized cellulose having a high mol. wt., by pre-treating cellulose in a non-alk. solvent for cellulose so as to lower its crystallinity, and then oxidizing it using an oxidizing system predominantly oxidizing the 6-hydroxymethyl groups or the 2,3-dihydroxyethylene groups to carbaldehyde and/or carboxyl groups. The oxidizing agent is preferably a nitroxyl compd. (TEMPO) or periodate, and the product is useful as a water absorbent. Thus, a phosphoric acid-regenerated cellulose (2 g) was suspended in water to which TEMPO (40 mg) and NaBr (1 g) were added. Sodium hypochlorite (2 M) was added in 2 mL portions to a total of 12 mL. The pH was kept at 10.5 by addn. of 0.5 M NaOH (total addn. 20.3 mL). The temp. was kept at 4.degree. during the reaction. The total reaction time was 5.5 h. The oxidized product was completely water-sol. Na borohydride (100 mg) was added to reduce aldehyde groups. The product was then isolated by pptn. and dried. The oxidn. degree of the product (based on NaOH consumption) was 85%. The product consisted of one monodisperse fraction with an av. mol. wt. of 410,000. The oxidized cellulose was dissolved in water (10% soln.), the pH was adjusted to 4.5 and butanediol diglycidyl ether was added (10 mol%). The crosslinking was carried out at 50.degree. for 20 h. The obtained gel was dried at 100.degree. in a fluidized bed dryer, reswollen in excess water and dried again. The particles were ground to 100-800 .mu.m particles. The absorption under load in synthetic urine was 11 g/g. Crosslinking with divinyl sulfone resulted in even better performance than with butanediol diglycidyl ether.				

L5 ANSWER 10 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2001:817022 CAPLUS  
 DOCUMENT NUMBER: 135:359319  
 TITLE: Aldehyde-containing polymers as wet strength additives

INVENTOR(S): in paper making  
 Thornton, Jeffrey Wilson; Van Brussel-Verraest, Dorine  
 Lisa; Besemer, Arie; Sandberg, Sussan  
 PATENT ASSIGNEE(S): Sca Hygiene Products Zeist B.V., Neth.  
 SOURCE: PCT Int. Appl., 24 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001083887	A1	20011108	WO 2001-NL343	20010504
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
EP 1154074	A1	20011114	EP 2000-201693	20000511
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
US 2002026993	A1	20020307	US 2001-848212	20010504
EP 1278913	A1	20030129	EP 2001-928253	20010504
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
PRIORITY APPLN. INFO.:			EP 2000-201630	A 20000504
			EP 2000-201693	A 20000511
			US 2000-203913P	P 20000512
			WO 2001-NL343	W 20010504

AB Water-sol. or water-dispersible polymers (and cationic derivs.) having a mol. wt.  $\geq 800$ , contg.  $\geq 0.5$  aldehyde groups/mol. and  $\geq 0.1$  carboxyl group/mol., the ratio of aldehyde groups to carboxyl groups being  $>0.75:1$ , are used as a wet strength additive in paper making. Thus, dialdehyde starch (100% oxidized) was prepnd. and slurried in 100 mL water and tissue hand sheets using 10 mg/g additive and 10 mg/g polyamide polyimide epichlorohydrin adduct, showing wet strength 3.2 Nm/g; vs. 2.5 Nm/g using polyamide polyimide epichlorohydrin adduct only.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 11 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2001:781472 CAPLUS  
 DOCUMENT NUMBER: 135:332682  
 TITLE: Oxidation of polysaccharides with nitroxyls  
 INVENTOR(S): Bragd, Petter; Besemer, Arie Cornelis;  
 Thornton, Jeffrey Wilson  
 Neth.  
 PATENT ASSIGNEE(S): U.S. Pat. Appl. Publ., 3 pp.  
 SOURCE: CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2001034442	A1	20011025	US 2001-841083	20010425
EP 1149846	A1	20011031	EP 2000-201461	20000425
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
JP 2002003503	A2	20020109	JP 2001-125591	20010424
PRIORITY APPLN. INFO.:			EP 2000-201461	A 20000425

AB A simplified process for oxidizing starch and other polysaccharides in an aq. soln. or suspension using hypochlorite in the presence of a catalytic amt. of a nitroxyl compd. (e.g., 2,2,6,6-tetramethylpiperidine-1-oxyl) is described. The oxidn. process is bromide-free and is carried out at a pH between 7 and 9.3 and at a temp. between 15 and 25 degree..

L5 ANSWER 12 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2001:360047 CAPLUS  
 DOCUMENT NUMBER: 134:354734  
 TITLE: Oxidized polysaccharides and products made thereof  
 INVENTOR(S): Jaschinski, Thomas; Gunnars, Susanna; Besemer,

Arie Cornelis; Bragd, Petter  
 PATENT ASSIGNEE(S) : SCA Hygiene Products G.m.b.H., Germany  
 SOURCE: PCT Int. Appl., 51 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001034656	A1	20010517	WO 2000-EP11048	20001108
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
DE 19953589	A1	20010523	DE 1999-19953589	19991108
BR 2000015245	A	20020723	BR 2000-15245	20001108
EP 1228099	A1	20020807	EP 2000-972899	20001108
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, MC, IE, SI, LT, LV, FI, RO, MK, CY, AL				
JP 2003514077	T2	20030415	JP 2001-537367	20001108
PRIORITY APPLN. INFO.:			DE 1999-19953589 A	19991108
			WO 2000-EP11048 W	20001108

AB The present invention relates to a polysaccharide having functional groups, wherein said groups are aldehyde groups formed at positions C2 and/or C3 as well as at position C6 of the anhydroglucose units of the polysaccharide chain. Preferably, the polysaccharide is a cellulosic fibrous material, the primary and secondary hydroxyl groups of which are at least partially oxidized to aldehyde groups by means of TEMPO oxidn. and periodate oxidn. The invention also relates to a paper or nonwoven comprising the above polysaccharide. According to the invention a relative wet strength of greater than 10% can be achieved.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 13 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2001:330920 CAPLUS  
 DOCUMENT NUMBER: 135:122663  
 TITLE: TEMPO-derivatives as catalysts in the oxidation of primary alcohol groups in carbohydrates  
 AUTHOR(S): Bragd, Petter L.; Besemer, Arie C.; van Bekkum, Herman  
 CORPORATE SOURCE: SCA Hygiene Products, Zeist, 3704 AJ, Neth.  
 SOURCE: Journal of Molecular Catalysis A: Chemical (2001), 170(1-2), 35-42  
 CODEN: JMCCF2; ISSN: 1381-1169  
 PUBLISHER: Elsevier Science B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 135:122663

AB Primary hydroxyl groups in aq. starch, pullulan and Me .alpha.-D-glucopyranoside were oxidized to the corresponding carboxylic acid functionalities by TEMPO-(4-X)-derivs. using sodium hypochlorite as the primary oxidant. All the combinations of substrates and nitroxyl radicals resulted in stoichiometric conversions, and the selectivity for oxidn. of primary hydroxyls was high. Some depolymn. occurred throughout the oxidn., esp. when 4-acetoxy and 4-mesyl-TEMPO were used. The pH window of the activity of the inexpensive 4-acetamido-TEMPO was found to be substantially lower from that of the other tested TEMPO-derivs.; thus allowing milder reaction conditions. At pH 8, the rate of oxidn. was ca. two times higher when 4-acetamido-TEMPO was used compared to the other catalysts.

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 14 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2001:29875 CAPLUS  
 DOCUMENT NUMBER: 134:71837  
 TITLE: Process for regioselective oxidation of primary alcohols of carbohydrates in preparation of uronic acids  
 INVENTOR(S): Besemer, Arie Cornelis; Jaschinski, Thomas  
 PATENT ASSIGNEE(S): SCA Hygiene Products Zeist B.V., Neth.

SOURCE: PCT Int. Appl., 11 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001000681	A1	20010104	WO 2000-NL453	20000628
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
EP 1065218	A1	20010103	EP 1999-202126	19990630
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
DE 10084757	T	20020829	DE 2000-10084757	20000628
PRIORITY APPLN. INFO.:			EP 1999-202126	A 19990630
			WO 2000-NL453	W 20000628

OTHER SOURCE(S): CASREACT 134:71837

AB The invention concerns a process for oxidizing a primary alc. such as a carbohydrate using an oxidizing agent in the presence of a catalytic amt. of a di-tertiary-alkyl nitroxyl, wherein the alc. is oxidized using an oxidic compd. of a period 4 or 5 metal having an oxidn. state of at least +3 as an oxidizing agent, for example manganese dioxide.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 15 OF 33 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:881088 CAPLUS

DOCUMENT NUMBER: 134:44078

TITLE: Process for regenerating periodic acid

INVENTOR(S): Besemer, Arie Cornelis; Jetten, Jan Mattijs

PATENT ASSIGNEE(S): Sca Hygiene Products Zeist B.V., Neth.

SOURCE: PCT Int. Appl., 10 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000075070	A1	20001214	WO 2000-NL386	20000607
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
BR 2000011371	A	20020226	BR 2000-11371	20000607
EP 1189834	A1	20020327	EP 2000-939190	20000607
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
JP 2003501334	T2	20030114	JP 2001-501556	20000607
US 6538132	B1	20030325	US 2001-980789	20011206
PRIORITY APPLN. INFO.:			EP 1999-201808	A 19990607
			WO 2000-NL386	W 20000607

AB Periodic acid is regenerated and recovered from a spent iodate soln. by reaction with at least an equimolar amt. of a hypohalite in the presence of a water-miscible org. solvent, K<sup>+</sup> or divalent cations (esp. Ca<sup>2+</sup>, Mg<sup>2+</sup>). The periodic acid is suitable for oxidn. of carbohydrates to dialdehyde carbohydrates, e.g., starch to dialdehyde starch, a wet strength additive for paper. Dialdehyde starch can be further oxidized to dicarboxy starch, a sequestering agent.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 16 OF 33 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:608783 CAPLUS

DOCUMENT NUMBER: 133:209514  
 TITLE: Process for selective oxidation of cellulose  
 INVENTOR(S): Jetten, Jan Matthijs; Van Den Dool, Ronald; Van Hartingsveldt, Wim; Besemer, Arie Cornelis  
 PATENT ASSIGNEE(S): Sca Hygiene Products Zeist B.V., Neth.  
 SOURCE: PCT Int. Appl., 14 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000050463	A1	20000831	WO 2000-NL119	20000224
W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
EP 1155039	A1	20011121	EP 2000-906770	20000224
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI			
BR 2000008475	A	20020205	BR 2000-8475	20000224
JP 2002537448	T2	20021105	JP 2000-601041	20000224
PRIORITY APPLN. INFO.:			EP 1999-200537 A	19990224
			WO 2000-NL119	W 20000224

AB A process for oxidizing cellulose, in which a nitroxyl compd. such as 2,2,6,6-tetramethylpiperidin-1-oxy (TEMPO) is oxidized using an oxidizing agent in the presence of a complex of a transition metal such as Mn, Fe, Cu, and a complexing agent such as a polyamine, or an oxidative enzyme, and the resulting nitrosonium ion is used to selectively oxidize the cellulose 6-hydroxy-methylene groups to carbaldehyde groups and carboxylic acid groups.

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 17 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 2000:608782 CAPLUS  
 DOCUMENT NUMBER: 133:209532  
 TITLE: Oxidized cellulose-containing fibrous materials, preparation thereof and products therefrom  
 INVENTOR(S): Jaschinski, Thomas; Gunnars, Susanna; Besemer, Arie Cornelis; Bragd, Petter; Jetten, Jan Matthijs; Van den Dool, Ronald; Van Hartingsveldt, Willem  
 PATENT ASSIGNEE(S): Sca Hygiene Products G.m.b.H., Germany; Sca Hygiene Products Zeist B.V.  
 SOURCE: PCT Int. Appl., 75 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000050462	A1	20000831	WO 2000-EP1538	20000224
W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
DE 19953590	A1	20010517	DE 1999-19953590	19991108
EP 1155040	A1	20011121	EP 2000-907622	20000224
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
BR 2000008378	A	20020219	BR 2000-8378	20000224
JP 2002537503	T2	20021105	JP 2000-601040	20000224
US 2002098317	A1	20020725	US 2001-931621	20010816
PRIORITY APPLN. INFO.:			EP 1999-200537 A	19990224

DE 1999-19953590 A 19991108  
WO 2000-EP1538 W 20000224

AB A cellulose-contg. fibrous material is prep'd. by oxidizing hydroxy groups at the C(6) of glucose units of cellulose into aldehyde and/or carboxy groups, and used to prep. paper or nonwoven products, esp. tissue products. The paper or nonwoven products display excellent strength properties. Thus, bleached hardwood sulfite pulp was treated for 60 min under acidic conditions with 4-hydroxy-TEMPO (1.00 g/50 g dry fibrous material) using 5% of 13% NaOCl as a primary oxidizing agent, and used to prep. test sheets (basis wt. 80 g/m<sup>2</sup>) having wt. 2.56 g, breaking strength 23.94 (dry) and 4.687 N/15 mm (wet), tear length 1980.1 (dry) and 387.7 m (wet), and rel. wet strength 19.6%, compared with 3.04, 18.48, 0.151, 1285.7, 10.5, and 0.8, resp., for a nonoxidized pulp.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 18 OF 33 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 2000:314401 CAPLUS  
DOCUMENT NUMBER: 132:323226  
TITLE: Carbohydrate oxidation products  
INVENTOR(S): Besemer, Arie Cornelis; Jetten, Jan  
Matthijs; Van Doren, Hendrik Arend; Van Der Lugt, Jan  
Pieter  
PATENT ASSIGNEE(S): Nederlandse Organisatie voor Toegepast-  
Natuurwetenschappelijk Onderzoek TNO, Neth.  
SOURCE: Eur. Pat. Appl., 7 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 999222	A1	20000510	EP 1998-203706	19981102
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
WO 2000026257	A1	20000511	WO 1999-NL673	19991102
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1137672	A1	20011004	EP 1999-971429	19991102
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002528605	T2	20020903	JP 2000-579643	19991102

PRIORITY APPLN. INFO.: EP 1998-203706 A 19981102  
WO 1999-NL673 W 19991102

AB A novel oxidn. product derived from a carbohydrate contg. 1,2-dihydroxyethylene groups in its repeating units, can be obtained by at least partially oxidizing the carbohydrate 1,2-dihydroxyethylene groups to dialdehyde groups, and oxidizing a part of the aldehyde groups to CO<sub>2</sub>H groups. The oxidn. product has a regular structure with alternating CHO groups and CO<sub>2</sub>H groups in a ratio of about 1:1. It can be further transformed to an amino-substituted oxidn. product by reductive amination of at least a part of the remaining CHO groups. Thus, starch was oxidized with NaIO<sub>4</sub> and the resulting starch dialdehyde further oxidized with Br (in situ generated from NaBr and AcOOH) to give starch comprising 0.7 CO<sub>2</sub>H and 1.2 CHO groups per monomeric unit.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 19 OF 33 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1999:736773 CAPLUS  
DOCUMENT NUMBER: 131:352732  
TITLE: Amino-carboxylic acid derivatives of carbohydrates as chelating agents  
INVENTOR(S): Van Brussel-Verraest, Dorine L.; Besemer, Arie C.; Thornton, Jeffrey W.  
PATENT ASSIGNEE(S): SCA Hygiene Products Nederland B.V., Neth.  
SOURCE: PCT Int. Appl., 17 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9958574	A1	19991118	WO 1999-NL300	19990517
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
AU 9941720	A1	19991129	AU 1999-41720	19990517
PRIORITY APPLN. INFO.:			EP 1998-201586	19980514
			WO 1999-NL300	19990517

AB The title derivs. are prep'd., wherein a group -CH<sub>2</sub>OH or -CH<sub>2</sub>OH group per 10 monosaccharide units is converted to a group having the formula -CH<sub>2</sub>A[NH(CH<sub>2</sub>)<sub>n</sub>CHR<sub>1</sub>CO]mOH, wherein m = 1-10, n = 0-4, A = a direct bond or a (poly)aminoalkylene group, R<sub>1</sub> = H, carboxyl, or C<sub>1</sub>-C<sub>4</sub> alkyl optionally substituted by OH, MeO, SH, MeS, substituted mercapto or dithio, amino, guanidino, guanyl, ureido, carboxyl, carbamoyl, Ph, substituted Ph or a heterocyclic group, or, if n = 0, R<sub>1</sub> may also be an amino. Other both carboxylated and aminated carbohydrates are equiv. to the derivs. defined above. These derivs. are useful for binding transition metals, e.g. before bleaching of pulp. Thus, a chelating agent was prep'd. from oxidized starch, aspartic acid, and Na cyanoborohydride.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 20 OF 33 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1999:723070 CAPLUS  
DOCUMENT NUMBER: 131:337312  
TITLE: Process for selective oxidation of primary alcohols  
INVENTOR(S): Van Der Lugt, Jan Pieter; Jetten, Jan Matthijs; Besemer, Arie Cornelis; Van Doren, Hendrik Arend  
PATENT ASSIGNEE(S): Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek TNO, Neth.  
SOURCE: PCT Int. Appl., 11 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9957158	A1	19991111	WO 1999-NL272	19990504
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
CA 2331701	AA	19991111	CA 1999-2331701	19990504
AU 9937369	A1	19991123	AU 1999-37369	19990504
AU 746462	B2	20020502		
BR 9910274	A	20010102	BR 1999-10274	19990504
EP 1093467	A1	20010425	EP 1999-919713	19990504
EP 1093467	B1	20020327		
AT 215097	E	20020415	AT 1999-919713	19990504
JP 2002513809	T2	20020514	JP 2000-547126	19990504
NZ 507873	A	20020531	NZ 1999-507873	19990504
ES 2174605	T3	20021101	ES 1999-919713	19990504
US 6518419	B1	20030211	US 2000-706767	20001107
PRIORITY APPLN. INFO.:			EP 1998-201495	A 19980507
			WO 1999-NL272	W 19990504

OTHER SOURCE(S): CASREACT 131:337312

AB Primary alcs., esp. in carbohydrates, can be selectively oxidized to aldehydes and carboxylic acids in a low-halogen process by using a peracid in the presence of a catalytic amt. of a di-tertiary-alkyl nitroxyl (TEMPO) and a catalytic amt. of halide. The halide is preferably

bromide and the process can be carried out at nearly neutral to moderately alk. pH (5-11). The peracid can be produced or regenerated by means of hydrogen peroxide or oxygen. The process is advantageous for producing uronic acids and for introducing aldehyde groups which are suitable for crosslinking and derivatization.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 21 OF 33 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1999:375255 CAPLUS  
DOCUMENT NUMBER: 131:23575  
TITLE: Superabsorbent material made from oxidized polysaccharides  
INVENTOR(S): Besemer, Arie Cornelis; Thornton, Jeffrey Wilson  
PATENT ASSIGNEE(S): SCA Molnlycke, Neth.  
SOURCE: Eur. Pat. Appl., 7 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 920874	A1	19990609	EP 1997-203823	19971205
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
WO 9929352	A1	19990617	WO 1998-NL693	19981207
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9915122	A1	19990628	AU 1999-15122	19981207
PRIORITY APPLN. INFO.: EP 1997-203823 19971205 WO 1998-NL693 19981207				

AB The invention provides a process of producing a superabsorbent polysaccharide deriv. by oxidn. of a .alpha.-glucan, glucomannan or galactomannan to introduce aldehyde functions; the oxidized polysaccharide subsequently being reacted with sulfur dioxide or an equiv. thereof to produce a hydroxysulfonated polysaccharide. The polysaccharide may be crosslinked before or after the oxidn. The preferred polysaccharide is starch or guar. Thus, 10 g starch was suspended in 14% sodium sulfate soln. and was crosslinked with 0.1% epichlorohydrin. After 20 h the product was isolated and washed, then treated with 96% ethanol and acetone and dried in vacuum oven. The dried material was suspended in 250 mL water and 6.6 g sodium periodate was added and the mixt. was stirred for 20 h to obtain an oxidized product with a 50% degree of oxidn. The product was collected by filtration washed, dried, and freeze-dried. To a suspension of 1 g of the dry material in 20 mL of water, 1.6 mL of 39% sodium bisulfite soln. was added to obtain a gel which was pptd. in 96% ethanol and then collected and dried. The product had a free swelling capacity of 1.0 g/g.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 22 OF 33 CAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1999:222866 CAPLUS  
DOCUMENT NUMBER: 130:224921  
TITLE: Cleaning of water filters with calcium-binding agents and catalytic oxidation in the presence of a di-tert-nitroxyl compound  
INVENTOR(S): Besemer, Arie Cornelis; Jetten, Jan Matthijs; Broens, Lute  
PATENT ASSIGNEE(S): Norit Membran Technologie B.V., Neth.  
SOURCE: PCT Int. Appl., 17 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9915256	A1	19990401	WO 1998-NL544	19980921

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,  
DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG,  
KP, KR, KZ, LC, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,  
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,  
UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,  
FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,  
CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

NL 1007086 C2 19990322 NL 1997-1007086 19970919

AU 9891901 A1 19990412 AU 1998-91901 19980921

PRIORITY APPLN. INFO.: NL 1997-1007086 19970919

WO 1998-NL544 19980921

AB Filters for water purifn. can be cleaned by treatment with a calcium-binding agent, preferably followed by catalytic oxidn., for example with hypochlorite in the presence of 2,2,6,6-tetramethylpiperidine-N-oxyl or a similar nitroxyl. Another oxidn system is with H<sub>2</sub>O<sub>2</sub> in the presence of a transition metal complex with a cyclic polyamine. The calcium-binding agent can be a dicarboxypolysaccharide, a phosphate, or a polyacrylamine (e.g., EDTA or NTA). In particular, dicarboxyinulin, optionally in combination with a zeolite, can be used as calcium-binding agent.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 23 OF 33 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:26714 CAPLUS

DOCUMENT NUMBER: 128:115171

TITLE: Autocatalytic oxidation of primary hydroxyl functions in glucans with nitrogen oxides

AUTHOR(S): de Nooy, Arjan E. J.; Pagliaro, Mario; van Bekkum, Herman; Besemer, Arie C.

CORPORATE SOURCE: Department of Biochemistry, TNO Nutrition and Food Research Institute, Zeist, 3700 AJ, Neth.

SOURCE: Carbohydrate Research (1997), 304(2), 117-123  
CODEN: CBRAT; ISSN: 0008-6215

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The selective oxidn. of the primary hydroxyl groups in the glucans cellulose, amylose and pullulan with nitrogen oxides has been studied. The polymers were dissolved in 85% phosphoric acid and sodium nitrate was used as the stoichiometric oxidant. A catalytic amt. of sodium nitrite was added to reduce the induction time. With this reaction system, where the oxidizing nitrogen oxides are formed in situ, the primary hydroxyl groups could be completely oxidized (> 95%) to carboxylic acids. Undesired ketones due to secondary hydroxyl group oxidn. were subsequently reduced with sodium borohydride. Esp. for the alpha.-glucans, this oxidn.-redn. sequence of secondary hydroxyl functions apparently gave epimerization. Degradn. of the polymers was slow provided the oxidn. was performed at 4 .degree.C. Thus, pullulan with <M<sub>w</sub>> .apprxeq. 170 kg/mol yielded a polyuronate with <M<sub>w</sub>> .apprxeq. 100 kg/mol. A study of this reaction system with beta.-cyclodextrin as the substrate clearly showed that the reaction was autocatalytic.

L5 ANSWER 24 OF 33 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:646015 CAPLUS

DOCUMENT NUMBER: 125:300167

TITLE: On the use of stable organic nitroxyl radicals for the oxidation of primary and secondary alcohols

AUTHOR(S): De Nooy, Arjan E. J.; Besemer, Arie C.; Van Bekkum, Herman

CORPORATE SOURCE: Department Biochemistry, TNO Nutrition Food Research Institute, Zeist, NL 3700, Neth.

SOURCE: Synthesis (1996), (10), 1153-1174

CODEN: SYNTBF; ISSN: 0039-7881

PUBLISHER: Thieme

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review with >111 refs. on the oxidn. of primary and secondary alcs. with nitroxyl radicals. A variety of stoichiometric and catalytic methods is discussed, with reactions in org. solvents, under biphasic conditions, and in water. Mechanistic studies and general exptl. procedures are included. The high regioselectivity for the oxidn. of primary alcs. that can be achieved in the presence of secondary alcs. is emphasized.

L5 ANSWER 25 OF 33 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1996:509667 CAPLUS

DOCUMENT NUMBER: 125:211144

TITLE: Complexation of LnIII and CaII Cations with  
 3,4-Dicarboxyinulin and Model Compounds: Methyl  
 3,4-Dicarboxy-.alpha.-D-fructofuranoside and  
 3,4-Dicarboxyxnystose, As Studied by Multinuclear  
 Magnetic Resonance Spectroscopy and Potentiometry  
 AUTHOR(S): Johnson, Louise; Verraest, Dorine L.; Besemer,  
 Arie C.; van Bekkum, Herman; Peters, Joop A.  
 CORPORATE SOURCE: Laboratory of Organic Chemistry and Catalysis, Delft  
 University of Technology, Delft, 2628 BL, Neth.  
 SOURCE: Inorganic Chemistry (1996), 35(19), 5703-5710  
 CODEN: INOCAJ; ISSN: 0020-1669  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Complexes of LnIII and CaII cations with 3,4-dicarboxyinulin (DCI) and  
 model compds., Me 3,4-dicarboxy-.alpha.-D-fructofuranoside (DCF) and  
 3,4-dicarboxyxnystose (DCN) were studied using multinuclear magnetic  
 resonance spectroscopy and potentiometric methods. Complexes of the model  
 compds. with LnIII ions provided a feasible way in which to study  
 complexation phenomena of the dicarboxyinulin/CaII system using NMR  
 techniques. Information on complex geometry was derived from the effect  
 of LnIII ions on chem. shifts and longitudinal relaxation rates.  
 Metal-ligand stoichiometries of 1:2 and 1:1, in which the ligand  
 coordination was tridentate as well as tetradentate, were found.  
 Potentiometric measurements carried out with CaII yielded information on  
 the stoichiometry as well as the cooperativity of metal ion binding by the  
 ligands.

L5 ANSWER 26 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 1995:820596 CAPLUS  
 DOCUMENT NUMBER: 123:202726  
 TITLE: Method for oxidizing carbohydrates  
 INVENTOR(S): Besemer, Arie Cornelis; de Nooy, Arjan Erik  
 Johan  
 PATENT ASSIGNEE(S): Nederlandse Organisatie voor Toegepast-  
 Natuurwetenschappelijk Onderzoek-, Neth.  
 SOURCE: PCT Int. Appl., 20 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9507303	A1	19950316	WO 1994-NL217	19940907
W: JP, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
NL 9301549	A	19950403	NL 1993-1549	19930907
NL 194919	B	20030303		

PRIORITY APPLN. INFO.: NL 1993-1549 A 19930907  
 OTHER SOURCE(S): MARPAT 123:202726  
 AB Carbohydrates having a primary OH group, e.g., starch (I), inulin, and  
 fractions and derivs. thereof, are oxidized by hypohalite in the  
 presence of a catalytic amt. of di-tert-alkyl nitroxyl, esp.  
 2,2,6,6-tetramethylpiperidin-1-oxyl (II), in an aq. medium at pH 9-13.  
 The catalytic amt. of nitroxyl is preferably 0.1-2.5 wt.% (based on the  
 carbohydrate). The oxidn. affords products having a high  
 content (>90%) of carboxyl groups, without significant chain breakdown.  
 Thus, a 4% soln. of NaOCl was adjusted to pH 10.8 with HCl, cooled to  
 0.degree., and added all at once to an aq. soln. contg. water-sol. potato  
 I, II (1 wt.% based on I), and NaBr at 0.degree.. The percentage uronic  
 acid formed was a measure of the selectivity of the reaction, and anal.  
 showed a 96% yield.

L5 ANSWER 27 OF 33 CAPLUS COPYRIGHT 2003 ACS  
 ACCESSION NUMBER: 1995:712425 CAPLUS  
 DOCUMENT NUMBER: 123:340678  
 TITLE: Selective oxidation of primary alcohols  
 mediated by nitroxyl radical in aqueous solution.  
 Kinetics and mechanism  
 AUTHOR(S): de Nooy, Arjan E. J.; Besemer, Arie C.; van  
 Bekkum, Herman  
 CORPORATE SOURCE: Dep. Biochem., TNO Nutr. Food Res. Inst., Zeist, 3700  
 AJ, Neth.  
 SOURCE: Tetrahedron (1995), 51(29), 8023-32  
 CODEN: TETRAB; ISSN: 0040-4020  
 PUBLISHER: Pergamon  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The kinetics of the TEMPO-mediated oxidn. of Me .alpha.-D-glucopyranoside to sodium Me .alpha.-D-glucopyranosiduronate were studied. An intermediate was found which was identified as the hydrated aldehyde. This was oxidized in the same manner as the alc., with pseudo first order rate consts. ratio Kobs,alc/kobs,alc .apprxeq. 7. The reaction mechanism is discussed with emphasis on steric factors and compared to literature data. Two different reaction pathways are postulated; under basic reaction conditions via a cyclic transition state and under acid reaction conditions through an acyclic transition state .

L5 ANSWER 28 OF 33 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:468959 CAPLUS

DOCUMENT NUMBER: 123:33535

TITLE: Highly selective nitrosyl radical-mediated oxidation of primary alcohol groups in water-soluble glucans

AUTHOR(S): de Nooy, Arjan E. J.; Besemer, Arie C.; van Bekkum, Herman

CORPORATE SOURCE: TNO Nutrition and Food Research Institute, Department of Biochemistry, Utrechtseweg 48, AJ Zeist, 3700, Neth.

SOURCE: Carbohydrate Research (1995), 269(1), 89-98

CODEN: CRBRAT; ISSN: 0008-6215

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 123:33535

AB With catalytic amts. of 2,2,6,6-tetramethyl-1-piperidinyloxy (TEMPO) and hypochlorite/bromide as the regenerating oxidant in water, primary alc. groups in glucans and derivs. thereof were rapidly and completely oxidized. For pyranosides, selectivity was higher than 95% and no side products could be detected with <sup>1</sup>H and <sup>13</sup>C NMR or with high-performance anion-exchange chromatog. (HPAEC). The optimum pH for the reaction was between 10 and 11. The oxidn. was found to be first order in TEMPO and Br-. The oxidn. method can be applied to det. the amt. of primary alc. groups in water-sol. glucans; for pullulan, a proportion of 70% and for dextran, a proportion of 3% primary alc. groups was found.

L5 ANSWER 29 OF 33 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1995:177561 CAPLUS

DOCUMENT NUMBER: 122:81806

TITLE: The hypochlorite oxidation of inulin

AUTHOR(S): Besemer, Arie C.; van Bekkum, Herman

CORPORATE SOURCE: TNO-Nutrition, Zeist, 3700 AJ, Neth.

SOURCE: Recueil des Travaux Chimiques des Pays-Bas (1994), 113(9), 398-402

CODEN: RTCPA3; ISSN: 0165-0513

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The oxidn. of inulin with hypochlorite in the presence of sodium bromide as the catalyst has been investigated. The main objective of this study was to establish the calcium-binding properties of the product, 3,4-dicarboxy-inulin, and to optimize the reaction conditions. The polycarboxylate products are obtained in high yields (80-95%) and exhibit good to excellent calcium-sequestering properties. Typical values for the sequestering capacity (SC) of dicarboxy-inulin, prep'd. from chicory-inulin with av. degree of polymn. (DP) 10, are 2.0=2.3 mmol Ca/g. Dahlia inulin (av. DP 30) yields an even better performing product (2.5 mmol Ca/g). Hence these materials are potential candidates for replacement of the often used co-builders in laundry detergent formulations, e.g. polyacrylate. The most suitable conditions for the reaction with bromide as a catalyst are found at pH 10. Without catalyst good results are obtained when the stoichiometric amt. of NaOCl is added at once to the inulin soln. and the pH is kept at 9.

L5 ANSWER 30 OF 33 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:220725 CAPLUS

DOCUMENT NUMBER: 120:220725

TITLE: The catalytic effect of bromide in the hypochlorite oxidation of linear dextrans and inulin

AUTHOR(S): Besemer, Arie C.; van Bekkum, Herman

CORPORATE SOURCE: TNO-Nutr., Zeist, 3700 AJ, Neth.

SOURCE: Starch/Staerke (1994), 46(3), 101-6

CODEN: STARDD; ISSN: 0038-9056

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The effect of bromide in the hypochlorite oxidn. of

amylodextrins (short chain amylose) and inulin on the reaction rate was investigated. Both in the linear dextrins and inulin oxidn., the rate increased linearly with the NaBr concn., which proved its catalytic effect. The origin of the catalysis is the rapid Br<sup>1-</sup>/OCl<sup>1-</sup> conversion. The 2nd-order rate const. of the reaction carbohydrate + HOBr/Br<sup>1-</sup> . fwdarw. polycarboxylates + HBr/Br<sup>1-</sup> was detd. at pH 9.0 and 294-298 K. The activation energy for the oxidn. of amylodextrins amts. to 67 kJ.mole<sup>-1</sup>. The highest rate was detd. at pH 8.25. The reaction rate was almost independent of pH in the region 8.5-9.5. Because of the simultaneous occurrence of Br, Br<sup>31-</sup>, hypobromous acid, and hypobromite in the pH region investigated, it was difficult to elucidate the oxidn. mechanism.

L5 ANSWER 31 OF 33 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1994:220724 CAPLUS  
 DOCUMENT NUMBER: 120:220724  
 TITLE: Dicarboxy-starch by sodium hypochlorite/bromide oxidation and its calcium-binding properties  
 AUTHOR(S): Besemer, Arie C.; van Bekkum, Herman  
 CORPORATE SOURCE: Dep. Biochem. Phys. Chem., TNO, Zeist, 3700, Neth.  
 SOURCE: Starch/Staerke (1994), 46(3), 95-101  
 CODEN: STARDD; ISSN: 0038-9056

DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Various aspects of the glycolic oxidn. of the glucose units of starch with stoichiometric amts. of NaClO using NaBr as the catalyst were investigated. The main objective of the study was the optimization of the reaction conditions for the prepn. of dicarboxy-starch and to establish the Ca sequestering capacity of the material. The products, polycarboxylates, were obtained in high yields (90-95%), and they had a sequestering capacity ltoreq.1.4 mmole Ca/g, which was somewhat higher than that of the materials obtained in a noncatalyzed oxidn. This was attributed to the fact that the reaction with NaBr may be carried out at higher pH (>9.0) than the noncatalyzed reaction and that a relatively low concn. of NaClO could be maintained throughout the process. In this way, the decompn. of HClO/ClO<sup>1-</sup>, esp. occurring at high concn. of HClO at low pH (6.0-8.0) was prevented. Other advantages of this procedure were the colorless appearance of the materials and the higher reaction rate. The feasibility for large-scale prepn. followed from the results of a few exploratory expts., including an electrochem. prepn.

L5 ANSWER 32 OF 33 CAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1991:473980 CAPLUS  
 DOCUMENT NUMBER: 115:73980  
 TITLE: Preparation of polydicarboxysaccharides by oxidation of polysaccharides and their use as detergent builders  
 INVENTOR(S): Besemer, Arie Cornelis  
 PATENT ASSIGNEE(S): Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek (TNO), Neth.  
 SOURCE: Eur. Pat. Appl., 11 pp.  
 CODEN: EPXXDW

DOCUMENT TYPE: Patent  
 LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 427349	A2	19910515	EP 1990-202964	19901108
EP 427349	A3	19911113		
EP 427349	B1	19950712		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE NL 8902786	A	19910603	NL 1989-2786	19891110
NL 9001027	A	19911118	NL 1990-1027	19900427
ES 2074528	T3	19950916	ES 1990-202964	19901108
CA 2029542	AA	19910511	CA 1990-2029542	19901109
CA 2029542	C	20010424		
JP 04175301	A2	19920623	JP 1990-302847	19901109
JP 3172171	B2	20010604		
WO 9117189	A1	19911114	WO 1991-NL68	19910426
W: AT, AU, BB, BG, BR, CA, CH, DE, DK, ES, FI, GB, HU, JP, KP, KR, LK, LU, MC, MG, MW, NL, NO, PL, RO, SD, SE, SU, US				
RW: AT, BE, BF, BJ, CF, CG, CH, CM, DE, DK, ES, FR, GA, GB, GR, IT, LU, ML, MR, NL, SE, SN, TD, TG				
AU 9176960	A1	19911127	AU 1991-76960	19910426
AU 649038	B2	19940512		
EP 526494	A1	19930210	EP 1991-907826	19910426
EP 526494	B1	19981209		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				

JP 05506685	T2	19930930	JP 1991-507729	19910426
JP 3004052	B2	20000131		
AT 174346	E	19981215	AT 1991-907826	19910426
ES 2126570	T3	19990401	ES 1991-907826	19910426
CA 2081483	C	19990413	CA 1991-2081483	19910426
NO 9204134	A	19921027	NO 1992-4134	19921026
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PRIORITY APPLN. INFO.:			NL 1989-2786	A 19891110
			NL 1990-1027	A 19900427
			WO 1991-NL68	A 19910426

AB Polydicarboxysaccharides are prep'd. by oxidizing polysaccharides in the presence of hypobromite and/or hypoiodite in low concn. The method gives high yields of dicarboxy product during short reaction times. The product has high Ca- and Mg-binding capacities and a white color and is useful as a phosphate substitute in detergent compns. Thus, a soln. of 7.1 g amylosedextrin in 150 mL water was treated with 0.3 g NaBr at pH 7.5-9 with 55 mL NaOCl soln. (contg. 0.10 g active Cl/mL; added at 2 mL/5 min) to prep. a dicarboxy amylosedextrin.

L5 ANSWER 33 OF 33 CAPLUS COPYRIGHT 2003 ACS

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TITLE: Polyglucuronic acids and their preparation and use

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WO 9104988	A1	19910418	WO 1990-NL142	19900928

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NL 8902428	A	19910416	NL 1989-2428	19890929
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AB Glucose-based polysaccharides such as starch and derivs. are selectively oxidized (esp. in an electrochem. cell) in the presence of complexing substances (e.g., C4-20 alkanoic acids and C3-C19 alkanesulfonic acids) to prep. polyglucuronic acids which have a high content of glucuronic acid units and are useful as complexing agents, carriers, stabilizers, solv. improvers, etc. Thus, 160 mg  $\beta$ -cyclodextrin was oxidized in an electrochem. cell in the presence of 100 mg lauric acid to give a polyglucuronic acid.